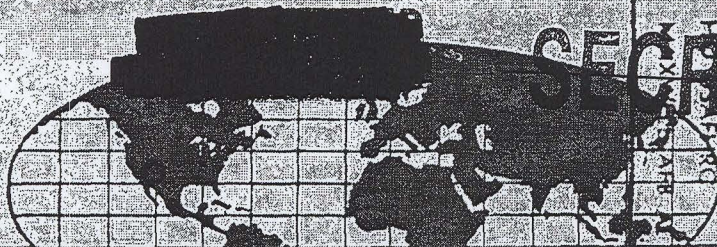


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NORTH AMERICAN AIR DEFENSE COMMAND

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IN WEEKLY INTELLIGENCE REVIEW (U)

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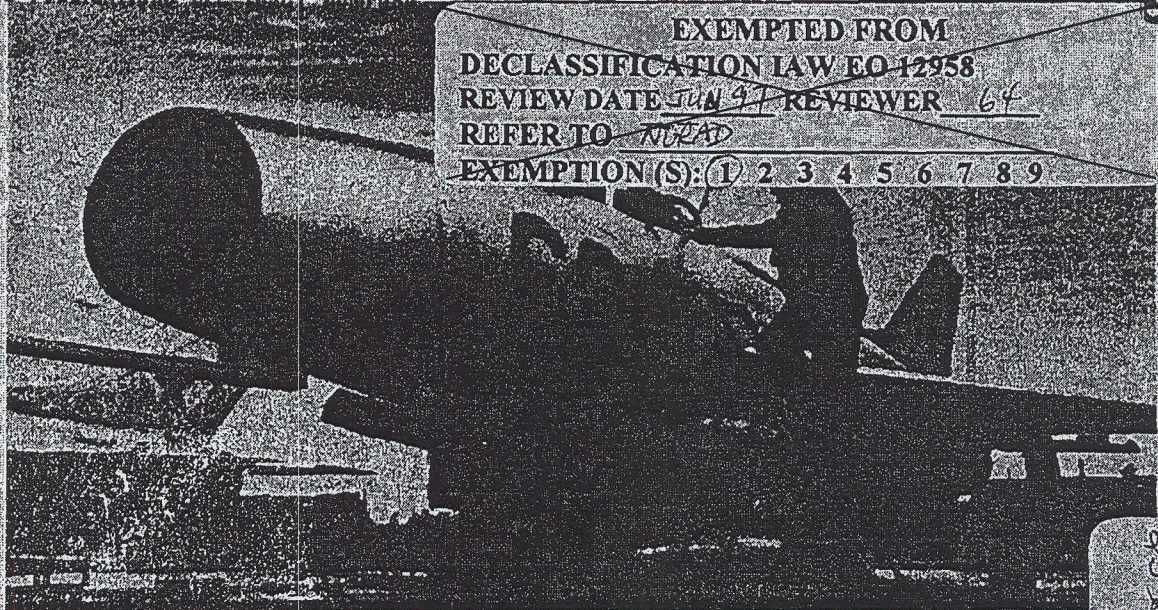
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Issue No. 39/64, 25 September 1964

The WIR in Brief

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Space

RECENT COSMOS PHOTORECCE SATELLITES MAY
HAVE CARRIED NEW, HIGH-RESOLUTION
CAMERAS

Photographed short, narrow strips.
COSMOS 45 DE-ORBITED EARLIER THAN USUAL
Possibly to retrieve high-priority space data or
photos.

'RED STAR' DESCRIBES AND DENOUNCES US'S
ANTISATELLITE PROGRAM, INCLUDING
SPADATS' ROLE

A translation.
LUXURY MOSCOW APARTMENT BUILDING PROB-
ABLY HOUSES SPACE/MISSILE PERSONNEL

Affords security, convenient access to Kremlin,
and plush living for personnel denied public
recognition.

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to the appeal

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space

significant
intelligence
on space
developments
and trends

Recent Cosmos Photorecce Satellites May Have Carried New, High-Resolution Cameras

Several recent Cosmos photoreconnaissance satellites probably carried a new, high-resolution camera system which would provide more detailed coverage of specific ground installations than could have been provided by previous satellites of this series.

[redacted] Soviet photoreconnaissance satellites, all of them Cosmoes launched from Tyuratam, have photographed long, broad strips of the Earth's surface, probably for search, targeting, and geodetic mapping purposes. Cameras of Cosmoes 22 and 30, however, appear to have photographed short, narrow strips, indicating that they were directed against specific installations and areas in efforts to obtain more detailed photography. Preliminary analysis suggests that Cosmoes 34 and 45 may have had the same capabilities.

These 4 satellites were orbited by the heavy Venik upper stage, judging by telemetry, and might therefore have been heavier than the usual Cosmos vehicles launched from Tyuratam, which were launched by the lighter Lunik stage. (See last week's WIR for estimated performance of these stages.)
(DIA)

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Cosmos 45 De-orbited Earlier than Usual

The Soviets' apparent photoreconnaissance satellite Cosmos 45, which was launched from Tyuratam (TT) 13 September, was de-orbited on Revolution 79 at about 0800Z, 18 September. This is the shortest time aloft by any of the de-orbited TT-launched Cosmoes since April 1963, when Cosmos 15 was also de-orbited on Revolution 79. All previous de-orbits of Cosmos vehicles this year have occurred on Revolutions 126-128 after about 8 days in space.

The early termination of this flight may have resulted from:

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- A desire to obtain as quickly as possible certain space-environment data, such as radiation levels, or photographs of selected ground targets of high-priority intelligence interest.
- Malfunction of equipment which required early recovery.
- Termination of a test, such as de-orbit and recovery of a new or modified re-entry vehicle. The appearance of a new or modified Soviet re-entry vehicle, more likely a new one, has been expected for some time. Cosmos 45 and 3 other de-orbited TT Cosmoes may have been heavier than other Soviet re-entry vehicles, since telemetry suggests that they may have been injected into orbit by the heavy Venik upper-stage rocket, instead of the lighter Lunik-stage normally used.

(SPADATS; NORAD)

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'Red Star' Describes and Denounces US's Antisatellite Program, including SPADATS Role

Following is a NORAD translation of an article by Engineer Colonel V. Vaneyev which appeared in the 9 August 1964 issue of Red Star, official daily newspaper of the Soviet Ministry of Defense.

ATTACKS IN ORBIT

American madmen and their partisans in the Pentagon are fertile with plans for the military use of space. They consider the militarization of the artificial Earth satellite program the first step on this path. It is not by chance that an ever greater number of American satellites are of the military type. Their chief "specialty" is reconnaissance, the gathering of meteorological, geodesic, and cartographic information. It is planned to use satellites and spaceships as weapons of attack, as aggressive weapons.

One of the trends in aggressive preparations of the American militarists is their planning and development of means for combating artificial Earth satellites launched into space by other nations. The execution of this task is divided in the US into three stages: detection, interception, and destruction.

DELINEATION OF THE ORBIT

The creation of a system for detecting satellites was started in 1958 and is still being carried on with even greater energy. This system, named SPADATS, is extremely vast, and yet continuing expansion of its very great material means is demanded. It is a component part of the



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North American Air Defense Command. To it is posed the problem of detecting all artificial space objects, defining their trajectories and orbits, and computing the place and time of their entry into the dense layers of the atmosphere.

The mode of detection depends on whether the satellite is "silent" or is "saying" something about itself. A sort of electromagnetic curtain stretching across the southern USA, from California to Georgia, is used to "fix" objects not sending signals. This space curtain is made up of emanations from four superpowered transmitters; it stretches to great heights above the surface of the Earth. The electromagnetic waves of these transmitters "illuminates" every space object which crosses them. The reflected signals are detected by four receiving centers. The position of the detected object is deduced from the direction of arrival of the reflected waves.

The transmitting stations are situated in the States of Arizona, Texas, and Alabama. The receiving centers are in California, New Mexico, Mississippi, and Georgia. To give some idea of the magnitude of the equipment, suffice it to say that the length of a transmitting antenna reaches 1.5 kilometers, a receiving antenna 0.5 kilometer.

Another system which gathers data on the movements of space objects consists of a great number of American radar stations in Alaska, Canada, and the USA. This system also uses data from the Ballistic Missile Early Warning System, which has superlong-range detectors in Greenland, Alaska, and England.

American optical-detection installations have been established in various parts of the world. They have photocameras, the dimensions and appearances of which remind one of antiaircraft guns. The telephoto lenses of these cameras take pictures of space objects at distances of a quarter of a million kilometers against a background of stars, permitting precise establishment of their positions. It is presumed that powerful radar stations and radiotelescopes situated in Canada, Puerto Rico, the island of Trinidad and other points on the globe are also used to observe satellites. These radars overlap tracks not covered by the basic systems. In individual cases, special tracking ships and aircraft can be used on radar patrols.

The USA has also built automatic space "observers" which are based on the use of infrared and ultraviolet rays. They also plan to use piloted space ships in the future for detecting satellites.

The heart of the SPADATS system is a great electronic data computing machine. This machine executes 160,000 addition or subtraction operations or 50,000 multiplication or division operations per second. Its memory can store more than 32,000 words and print answers with a speed of 21,000 words per minute.

The machine, acting on data received, defines parameters of detected space objects and gives them to the output system. Also, there is a constant comparison of incoming data with data entered in the catalog, and, on the basis of this comparison, space objects are identified or determined



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to be new ones.

Through constant computation, the center provides timely data about all new space objects and about changes in the positions of known ones. It maintains a current catalog of space objects which it constantly updates.

According to the American press, in March 1964 observations were made of at least 300 space objects -- of big spaceships as well as of fragments of destroyed rockets about the size of an ordinary pencil. Specialists estimate that in coming years the number of objects can be expected to increase to 10,000.

This information shows that the USA has paid great attention to the creation of an enormous, complex system for detecting and tracking artificial Earth satellites. This is considered indispensable to combating them.

INTERCEPTION IN SPACE

Direct interception and attack of satellites, in the opinion of American specialists, can be accomplished in space. This, it is presumed, is to be done with piloted space stations. Either the space station itself or a special space aircraft on board or alongside it can attack the satellite.

American specialists foresee an approach maneuver which brings the station to within several hundred meters and then to within even tens of meters of the target. Certain press organs indicate that the closest approach will be 15-25 meters. The station attacking the satellite will have to carry weapons to destroy the satellite or to "overpower" its individual systems. "Overpowering" could mean, for example, the use of electronic jamming.

When a space plane attacks a satellite, the approach distance will be relatively large. The aircraft, apparently, will carry only destructive means, since the time it will spend in the area where it can have any effect on the space target is extremely limited. To put an aircraft into the vicinity of a space target will, it is presumed, require the use of radar, infrared devices, and range-finders with quantum generators (lasers or masers).

The American press is carrying on a great debate on the use of space weapons. American madmen insist that military space stations, which are planned for the 70s, must be designed for the delivery of weapons of mass destruction. In this connection, the well-known agreement on the non-introduction of nuclear weapons into space was met with open fury by reactionaries of the USA. Even now they are creating semifantastic schemes for using various forms of "exotic" weapons -- rays, plasmas, etc., in space.

Since the production and launch of a space station is so expensive, American specialists are trying to build them for long stays in orbit: for no less than 2-5 years. But this increases the number of problems demanding solution. It will be necessary to provide for periodic relief of crews, to supply the men with all the essentials, and to provide communications with the Earth for a long period of time.



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The first military space station, it is planned, will be launched to an altitude of about 1,000 kilometers (540 n.m.) and ultimately to altitudes of about 15,000 kilometers (8,100 n.m.) or greater. Most probably the Titan-3 rocket will be used with the Gemini spaceship for this purpose.

However, even the authors of the space station project are skeptical of its reality. They note that the USA has not yet built a spaceship suitable for a space "voyage" of any great length. Only most recently has the USA succeeded in orbiting payloads of useful weight, comparable with the weight of the numerous Soviet spaceships which have been launched. The USA has not yet been able to produce maneuvering spaceships, to launch rockets from aboard heavy satellites, and to launch simultaneously two satellites with cosmonauts aboard and then cause them to meet in space. And without these tests it will be impossible to take the step toward a space station.

THE BLOW FROM THE EARTH

The magazine "Missiles and Rockets" noted recently that the administration of the newest research work of the Department of Defense of the USA decided in the fall of last year to create ground-based antisatellite weapon systems. The Space Systems Division of the Air Force was charged with supervising this program.

It was announced that flight tests of interceptor satellites would take place toward the end of 1965 or early in 1966. The first stage of the system is expected to be the Thor Rocket, the second stage the Agena-D. Radio guidance will be used. It is proposed to use steel pellets to deal with the target, the impact of which damages the satellite and knocks it down from orbit. They are also trying to find new ways to destroy the heating system of satellites, thus causing them to become overheated. Also being studied are ways to disable solar batteries and thus destroy the satellite's on-board power system. *reduces 1/11*

Preparatory work on space intercepts is being carried on at Johnston Island. The island itself is being widened, and beside it are being built two artificial islands, on which will be placed communications and guidance installations.

The emphasis which this project receives can be judged by the fact that 1,930 men were working on Johnston Island in early 1964.

Dangerous schemes are being ripened in the minds of the Pentagon's "fighters." But the peoples of the peace-loving countries, the Soviet people are vigilantly following the intrigues of the militarists of the USA and are ready to destroy with all their might these criminal plans. Let not the aggressor rejoice in the hope that in space the punishing sword of retribution will not overtake him. The Soviet Armed Forces are equipped with weapons which can smash the aggressor in any sphere -- on the ground, in the air, or in space -- wherever he chooses to attack.

(RED STAR)

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Luxury Moscow Apartment Building Probably Houses Space/Missile Personnel

The Soviet space/missile program has been shrouded by security since its inception as a major, organized effort. A major facet of the security effort may be a high-rise, luxury apartment building at 1/Ploshchad Vosstaniya, Moscow, which apparently is being used to house top-level managerial, advisory, and support personnel of the Soviet space/missile program. This arrangement is conducive to both physical and document security. The comparative excellence of the quarters, at the same time, serves in some degree to compensate the occupants for the public acclaim they deserve but which is denied them for reasons of security.

There has been no public acknowledgement that this building is in any way connected with the space/missile program. In fact, attempts have been made to divert attention from it. The few Soviets who have told Westerners they knew someone living in the building have revealed only that their friends were middle-level bureaucrats in industry. One scientist who lives there has said that the building was occupied by scientists, athletes, and artists in about equal proportions.

The probability that the building houses top space/missile personnel is indicated by the backgrounds of its residents and by the precedent set when similar housing was set aside for personnel of an earlier high-security program -- the Soviet nuclear effort.

1/Ploshchad Vosstaniya (Rebellion Square). Amid publicity on the desirability of tall structures to create a skyline which would relieve the monotonous architectural flatness of Moscow, 7 tall buildings were built in the decade following World War II. These edifices, ranging in height from 446 to 787 feet, comprise 2 office buildings, 2 hotels, 2 apartment buildings, and the new Moscow State University. One of the 2 apartment buildings is that located at 1/Ploshchad Vosstaniya, about 1 mile west-northwest of the Kremlin (map on page 13, photos on page 33.)

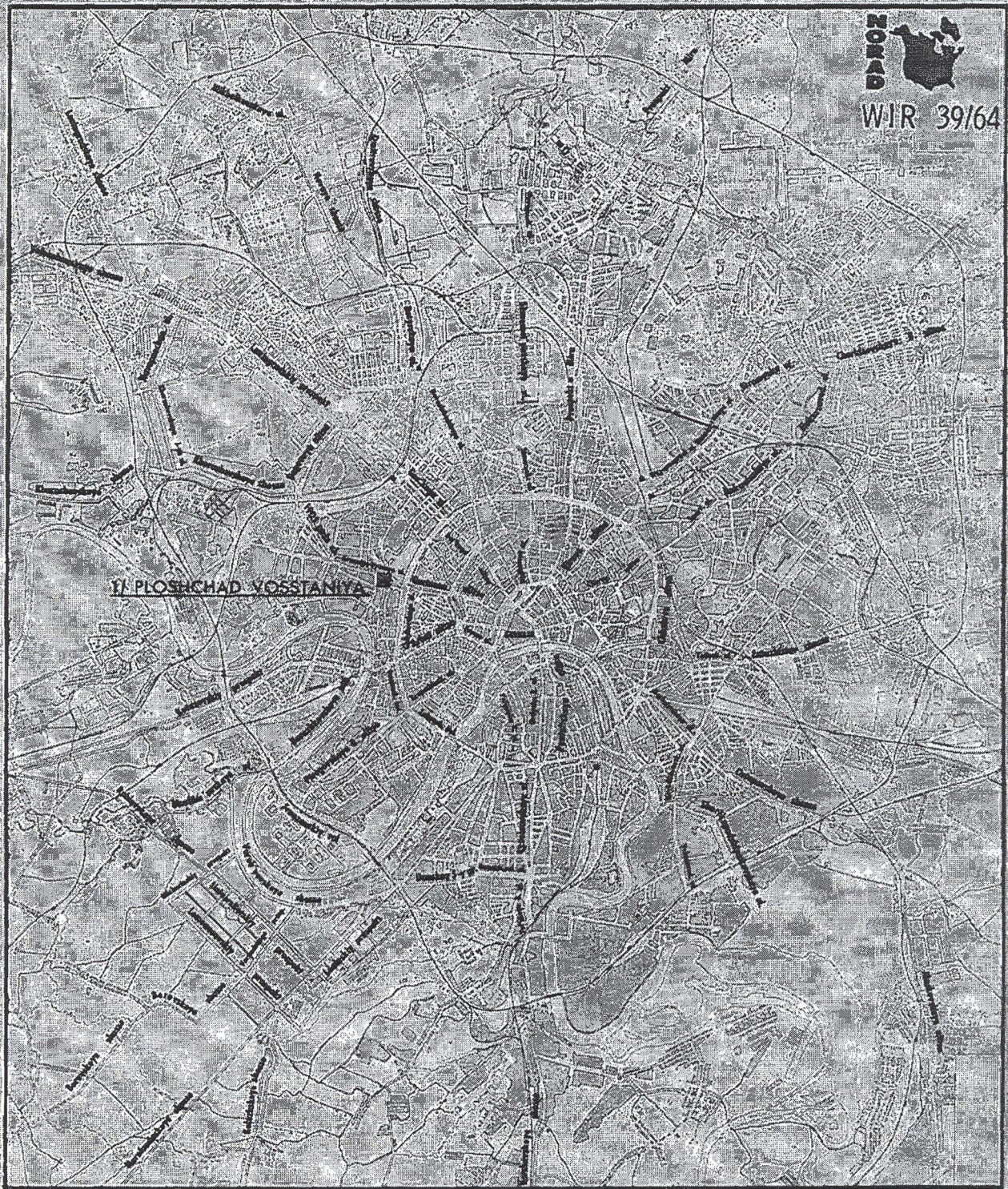
Its design was completed at least by 1949, when its architects received a Stalin prize for their work. The award announcement said that the main part of the building was to be 16 stories high, the elevated central portion 22 stories. The top of the crowning sculpture would be 120 meters (390 feet) above the ground floor. It was to have 17,800 square meters of floorspace, with 426 apartments of 2, 3, and 4 rooms. Plans called for a tunnel entrance to service the building and a basement parking garage.

The completed building in 1955 was much larger, according to press accounts. The central towerlike structure was 33 stories high (22 for living quarters), and the 2 wings were 21 stories each (18 for living quarters). The top of the spire and emblem was 160.5 meters (525 feet) above the street. Usable floorspace was given as 31,033 square meters -- 18,724 for living space and 12,309 for "auxiliary" purposes. Part of this auxiliary space may be taken up by office space and conference rooms.



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MOSCOW: LOCATION OF I/ PLOSHCHAD VOSSTANIYA



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Despite the building's larger volume, the number of apartments was increased only from 426 to 452 -- 12 of one room, 325 with two rooms, 79 with 3 rooms, and 36 with four rooms. There are also 2 large dormitories.

The underground parking facility either was not built or was entirely inadequate, since parking space for tenants is reserved at surface level in the environs.

The city square which the building faces was radically redesigned at the same time. Smaller buildings in front were removed, letting 1/Ploshchad Vosstaniya face the open square, while the rear is bordered by a 65-acre zoo-park.

The building was said to cost 5-6 times as much as normal residential construction.

Residents of the Building. The 1960 Moscow City Telephone Directory (a classified publication) lists 393 subscribers at 1/Ploshchad Vosstaniya, thus accounting for a large number of the presumed occupants of the 452 apartments reported. Although only the initials of given names and patronymics (Russian middle names) are listed in the Directory, the identity of 177 of these individuals has been established at high levels of probability, and 116 at lower levels of probability; 100 names remain unidentified.

The areas of professional competence of the identified subscribers represent the basic and applied sciences, the technologies, and the industries requisite to a national space/missile effort. Backgrounds of the residents include the following:

- Basic sciences: acoustics, atomic energy, crystallography, chemistry, geology, geophysics, metallurgy, physics, spectroscopy.
- Applied sciences: aviation, architecture, life sciences, machine building, guidance and control, hydrology, nuclear energy, measuring instruments, mining, astronomy, metallurgy, construction, fuels, geography.
- Academic: aviation, communications, transportation, electric power, geography, metallurgy, mechanical engineering, economics, construction.
- Engineering/Technology: aviation, construction, guidance and control, welding, hydraulics, machine building, power engineering, guided missiles/space, electronics.
- Industry/Production: aviation, chemistry, communications/electronics, metallurgy, machine building, transport construction, transportation, armaments, tanks, construction, guided missiles/space, optics.

The building's residents also include the full-time Party officials, members of the security apparatus, and propagandists characteristically assigned to all activities and enterprises in the USSR. All are of high rank. There are also a few individuals associated with diplomacy and foreign trade, and a number of persons with military backgrounds.



Most significant is the cross-section of the Soviet aviation industry represented by the residents of 1/Ploshchad Vosstaniya. Included are representatives of the industry's Ministerial and State-Committee management, scientific and academic organizations, applied research centers, experimental design bureaus, and production elements. Among the group are administrators, scientists, designers, engineers, and test pilots.

The affinity of air flight and space flight and their associated technologies has been evident both in the US and the USSR. In the US, the National Aeronautics and Space Agency (NASA) began its space program with a nucleus of 8,000 scientists, engineers, and supporting personnel who had been assigned to the National Advisory Committee for Aeronautics. In the USSR, the affinity is supported by an excerpt from an article in Red Star of 9 January 1962 by aircraft designer Artem Mikoyan (co-designer of the MIGs):

"The development of the space ships was made possible only by the noted successes of Soviet jet airplane construction and of native rocket engineering and also the profound knowledge, rich experience, and brilliant mastery of flying by our pilots. The development of the spaceships, Vostok I and Vostok II, is the result of a fruitful fusion of the achievements of rocket and aviation engineering."

Other examples of this affinity:

- The Chief Designer of Space Vehicles (never identified) reportedly spent 25 years as a designer of aircraft before becoming a designer of space vehicles.
- Sputnik 3, according to a US national who visited the Space Exhibit in Moscow, made use of aircraft-type plugs, cables, metals, and other items.

The high level of professional competence of the building's residents is suggested by the fact that at least 140 major honors -- national titles and orders -- have been awarded to the 177 residents who have been identified with a high level of validity. Three residents are winners of Lenin Prizes, 37 are winners of Stalin Prizes. Of the 140 honors, 100 awards and 22 prizes are for achievements in the field of aviation.

Finally, the national administrative, military, and political importance of at least some of the building's residents is evident in the fact that 21 of them are listed in the directory of Kremlevka, the government's secure telephone system serving the Moscow area. Operated by the KGB (Committee for State Security), the Kremlevka is an automatic telephone system of 2700-2800 numbers; it does not interconnect with the Moscow municipal system. Application for Kremlevka extensions are submitted to the government's top body, the Council of Ministers; only the person to whom a Kremlevka telephone is allocated, or his immediate deputy, may use it. Of the 21 apparent residents of 1/Ploshchad Vosstaniya who have Kremlevka service, 9 have been identified with high degrees of probability, 12 with lesser degrees of certainty.



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Publicity vs. Security for the Soviet Space Program. The enhancement of Soviet prestige at home and abroad has been both a major aim and a major outcome of the Soviet space program. The Soviets have publicized their most spectacular space events, particularly the manned flights, by all known media -- radio, TV, newspapers, magazines, motion pictures, lapel buttons (a favorite form of personal ornamentation with Soviet citizens), postage stamps, music (such as compositions to honor a specific flight), and personal appearances by cosmonauts.

The basic ingredients of publicity are people, places, things, and their actions and interactions -- that is, events. But Soviet publicists have had their efforts severely limited in the use of these basic elements by security restrictions.

These restrictions have applied, not unexpectedly, to the military rocketry involved. Also par for the Soviet course is refusal to discuss the scheduling of space launches until after they occur, or to announce the purpose of a launch until success seems assured -- all this in the name of concealing failures and delays.

Less expected, however, has been the anonymity surrounding the individuals and organizations involved in the space program. The policy of anonymity has been stated publicly several times but the first, most extensive, and most authoritative statement to this effect was made by Khrushchev himself on 9 July 1958 in an address to East German workers.

"...The Soviet atomic specialists or the specialists who created the intercontinental rocket and the artificial earth satellites have no complaint about their socialist state. They live very well -- you should have it so good, as they say! The Soviet Government rewards them. Many of them have received the Lenin Prizes and the title of Hero of Socialist Labor. They also are well provided for materially. They 'suffer' a little only in one way; for the time they must remain anonymous to the outside world. It is as if they worked under the name 'scientists and engineers working in the field of atomic and rocket technology.' But who these people are is still generally unknown. We shall build an obelisk in honor of those who created our rockets and artificial earth satellites; we shall inscribe their glorious names in gold, so that they may be renowned for generations to come.

"Yes, when the time comes, the photographs and names of these illustrious persons will be published, and they will become widely known among the people. We respect these men very highly and value them; we help keep them secure from enemy agents who might be sent to destroy such outstanding people, our valuable cadres. But right now, to safeguard the security of the country and the lives of these scientists, engineers, technicians and other specialists, we cannot make their names public or print photographs of them...."

The primary figures of the Soviet space effort have been recognized in the press only by such titles as the Chief Designer of Spaceships, Chief Designer of Spaceship Engines, Chief Theoretician of Space Flight Trajec-



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tories, Chief Spacesuit Designer, and Chief Therapist (flight surgeon).

Over 7,000 individuals were honored with titles, medals, or other awards in June 1961 for their contributions to the success of the first manned flight, and numerous laudatory references have been made in speeches and the press to the efforts of the scientists, designers, engineers, technicians, and workers who designed and built the rocketry, spaceships, and instrumentation for the space program. Throughout all this outpouring of publicity there has been an almost total absence of names. In general, only the cosmonauts who have made flights and a few top-level personalities (e.g., Khrushchev, Brezhnev, and Kozlov) have been named. A recent, minor exception was an article in a magazine for Soviet noncommissioned officers which named a few career master sergeants who had tested equipment or helped give the cosmonauts parachute-jump training. (WIR 30/64, page 8)

Organizations responsible for the space program have been concealed by omission and by vague and confusing press references to a "State Committee" and to a "State Commission" for the program as a whole or for a specific launch. As an exception, the Interdepartmental Commission on Interplanetary Communications (ICIC) was named in 1955 as the body responsible for the "scientific elements" of the space program, and in 1962 this body was renamed, or was replaced by, the Commission on Exploration and Use of Outer Space. Top members of these bodies have been identified and they have commented authoritatively on the program from time to time.

As sidelights, thoroughness in the planning of publicity for the space program has been demonstrated by a few relatively minor occurrences:

- As soon as the first successful lunar probe was announced in September 1959, a Soviet delegation to an international meeting in Chicago promptly presented other delegates with souvenirs of the event -- the inevitable lapel buttons depicting the probe's trajectory.
- Biographies of cosmonauts Nikolayev and Popovich were distributed in book form within a week after completion of their flights in Vostoks 3 and 4.
- Photographs of cosmonaut Bykovsky were displayed in the street windows of Izvestia's newspaper plant in Moscow within 1.5 hours after the launch of Vostok 5.

Security Measures. The official admission that many prominent persons in the USSR participate anonymously in the Soviet space effort automatically creates a major security problem. Considerable effort must have been made to establish and maintain "cover" for the organizations and individuals involved, and it is likely that attempts have been made to divert attention to persons not actually involved in the program.

The activities of high-level participants appear to have been concealed to some extent by crediting them publicly with various academic affiliations and with joint authorship or editorial duties in publications which concern their known specialties.



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The success of this security effort is implicit in the absence of compromises concerning the Soviet space program.

One of the factors that would contribute significantly to the apparent success of these Soviet security measures over the past decade could be the concentration of most of the prominent elements of space coordination and management at one secure location in Moscow. It is customary in the USSR for employees of any given enterprise to live in the same apartment building. This one happens to be plush enough for the high-ranking individuals connected with the Soviet space program, and since it is close to the Kremlin, it is afforded a high degree of security and it is convenient for top-level coordination.

(CIA; Soviet press; NORAD)

~~(SECRET NO FOREIGN DISSEMINATION Except US, UK & Canada)~~



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to the appeal

Soviet Academy of Sciences Refuses to Fund Large Telescopes

Soviet plans to have the largest astronomical observational equipment in the world appear to have run into financial difficulties. M. V. Keldysh, President of the Academy of Sciences, USSR, told Soviet astronomers that they cannot expect to have the world's largest optical and radio telescopes and telescopes on balloons and satellites. Keldysh made his statement in reply to a plea for increased expenditures in astronomy made by L. A. Artsimovich and V. A. Ambartsumyan at the annual meeting of the Academy.

This new policy probably will prevent or delay the construction of a number of very large optical and radio telescopes presently in the planning stage. These may include a 6-meter (236") optical telescope which would



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be the world's largest if completed; a 200-meter earth-bowl-type radio telescope; and a very large segmented-plate radio telescope similar to the one at Pulkovo but 1 kilometer in diameter. Keldysh's statement indicates a budget awareness not heretofore noted in relation to Soviet astronomy. The new policy of the Academy seems to be that there will be no large expansions in the astronomy program, but no cut-backs have been indicated in the construction of smaller telescopes and facilities.

The Soviets have not made conspicuously good use of their existing optical and radio telescopes, and it is doubtful that new equipment would bring about any notable improvement in their observational astronomy program in the near future. Soviet astronomers have not produced scientific "spectaculars" since the beginning of the space program. Thus the Soviet Academy has apparently decided that an expanded observational astronomy program cannot be justified from the standpoint of either scientific or propaganda value.

(CIA)

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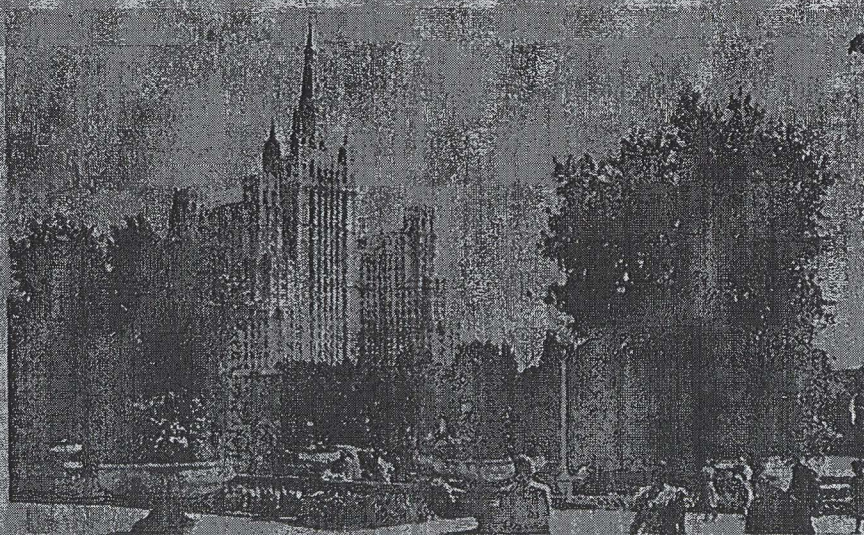
1/Ploshchad Vosstaniya

Probable Residence of Top Administrators
and Scientists of the Soviet Space/
Missile Program

Front View →
(Building in front has
since been torn down.)



Rear View
(from the zoo)



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